

IN THE CLAIMS:

1. (Currently Amended) A system for managing licenses for protected software on a communication network, the system comprising:

at least one client computer coupled to the communication network for requesting authorizations to use the protected software; and

5 a pool of license servers coupled to the communication network, each license server programmed for managing a distribution of one or more allocations to at least one client computer to use the protected software and for maintaining a record of distribution, the pool of license servers including a current leader server programmed for maintaining a record of allocations for license servers in the pool, wherein upon selecting a new leader server from
10 the pool, the new leader server is further programmed for receiving from each license server the record of distribution for that license server.

2. (Original) A system as recited in claim 1, the pool of license servers further including at least one follower server, each follower server programmed for managing the distribution of allocations for that particular follower server.

3. (Currently Amended) A system for managing licenses for protected software on a communication network, the system comprising:

at least one client computer coupled to the communication network for requesting authorizations to use the protected software; and

5 a pool of license servers coupled to the communication network, each license server programmed for managing a distribution of one or more allocations to at least one client computer to use the protected software, the pool of license servers including a current leader server programmed for maintaining a record of allocations for license servers in the pool;

10 wherein the pool of license servers includes at least one follower server, each follower
server programmed for managing the distribution of allocations for that particular follower
server;

wherein each license server includes memory for storing a status of the allocations for
that particular license server;

15 wherein each follower server is programmed for communicating the status of the
allocations for that particular follower server to the current leader server, and wherein upon
selecting a new leader server from the pool, the new leader server is further programmed for
receiving from each license server the status of allocations for that particular license server.

4. (Currently Amended) A system for managing licenses for protected software
on a communication network, the system comprising:

at least one client computer coupled to the communication network for requesting
authorizations to use the protected software; and

5 a pool of license servers coupled to the communication network, each license server
programmed for managing a distribution of one or more allocations to at least one client
computer to use the protected software and for maintaining a record of distribution, the pool
of license servers including a current leader server programmed for maintaining a record of
allocations for license servers in the pool;

10 wherein the pool of license servers includes at least one follower server;

wherein each follower server is programmed such that it is capable of becoming a
new leader server if the current leader server can no longer manage the distribution of
allocations for the license servers, and wherein upon selecting a new leader server from the
pool, the new leader server is further programmed for receiving from each license server the
15 record of distribution for that license server.

5. (Currently Amended) A system as recited in claim 4, wherein the pool of
license servers ~~are~~ is programmed for communicating with each other and determining when

a particular license server can no longer manage a distribution of allocations to use the protected software.

6. (Original) A system as recited in claim 1, wherein the license servers are programmed for preventing the issuance of an authorization to use protected software unless a majority of license servers are functioning and capable of managing a distribution of allocations to use the protected software.

7. (Original) A system as recited in claim 5, wherein each client computer that has received an authorization from a particular license server, and the particular license server that sent the authorization to the client computer, are programmed for communicating heartbeats between each other; and

5 wherein each client computer that has received an authorization from a particular license server is programmed for determining whether that particular license server is still capable of managing a distribution of allocations to use the protected software.

8. (Original) A system as recited in claim 7, wherein each client computer that has received an authorization from a particular license server but has determined that particular license server is no longer capable of managing a distribution of allocations to use the protected software is programmed for:

5 locating a new leader server; and
communicating a heartbeat from the client computer to the new leader server.

9. (Original) A system as recited in claim 8, wherein if the new leader server receives a heartbeat from a client computer that has located the new leader server, the new leader server is programmed for:

determining if the new leader server had already issued an authorization to the client
5 computer; and

converting the heartbeat to a request for an authorization if the new leader server had not already issued an authorization to the client computer.

10. (Original) A system as recited in claim 5, each license server further including memory for storing a license file and sequence number;

wherein if a particular license server is no longer capable of managing a distribution of allocations to use the protected software, the memory in the particular license server is
5 capable of receiving a new redundant license file and a new sequence number; and

wherein if the particular license server is brought back on line and if the new sequence number is greater than any sequence number currently stored in the memory of the other license servers in the pool, the particular license server and the other license servers in the pool are programmed for transferring the new redundant license file to other license
10 servers in the pool.

11. (Currently Amended) A method for managing licenses for protected software on a communication network, the method comprising:

coupling at least one client computer to the communication network for enabling the at least one client computer to issue a request for an authorization to use the protected
5 software over the communication network;

coupling a pool of license servers to the communication network, each license server managing a distribution of allocations to at least one client computer to use the protected software;

selecting one of the license servers in the pool as a current leader server and
10 maintaining a record of allocations for license servers in the pool with the current leader server,

selecting a new leader server from the pool of license servers, and

transmitting the distribution of allocations of each license ~~licensed~~ server to the new leader server.

12. (Original) A method as recited in claim 11, further including the steps of:

designating other license servers that are not the current leader server as follower servers; and

managing the distribution of allocations for each follower server with that particular
5 follower server.

13. (Currently Amended) A method for managing licenses for protected software on a communication network, the method comprising:

coupling at least one client computer to the communication network for enabling the
at least one client computer to issue a request for an authorization to use the protected
5 software over the communication network;

coupling a pool of license servers to the communication network, each license server
managing a distribution of allocations to at least one client computer to use the protected
software;

selecting one of the license servers in the pool as a current leader server and
10 maintaining a record of allocations for license servers in the pool with the current leader
server;

designating other license servers that are not the current leader server as follower
servers;

managing the distribution of allocations for each follower server with that particular
15 follower server;

storing a status of the allocations for each license server within each license server;
and

communicating the status of the allocations for each follower server to the current leader server; [[,]]

20 selecting a new leader server from the pool of license servers, and
transmitting the status of allocations of each license ~~licensed~~ server to the new leader server.

14. (Previously Presented) A method as recited in claim 20, further including the step of determining, by communications between the pool of license servers, when a particular license server can no longer manage a distribution of allocations to use the protected software.

15. (Original) A method as recited in claim 11, further including the step of preventing license servers from issuing authorizations to use protected software unless a majority of license servers in the pool are functioning and capable of managing a distribution of allocations to use the protected software.

16. (Original) A method as recited in claim 14, further including the steps of:
communicating heartbeats between client computers that have received an authorization from a particular license server and that particular license server; and

5 determining, for each client computer that has received an authorization from a particular license server, if that particular license server is still capable of managing a distribution of allocations to use the protected software.

17. (Original) A method as recited in claim 16, wherein for each client computer that has received an authorization from a particular license server but has determined that particular license server is no longer capable of managing a distribution of allocations to use the protected software, the method further includes the steps of:

5 locating the new leader server; and

communicating a heartbeat from the client computer to the new leader server.

18. (Original) A method as recited in claim 17, wherein if the new leader server receives a heartbeat from a client computer that has located the new leader server, the method further includes the steps of:

5 determining if the new leader server had already issued an authorization to the client computer; and

converting the heartbeat to a request for an authorization if the new leader server had not already issued an authorization to the client computer.

19. (Original) A method as recited in claim 14, further including the steps of:

storing a redundant license file and sequence number within each license server;

5 storing a new redundant license file and a new sequence number in a particular license server that is no longer capable of managing a distribution of allocations to use the protected software;

restoring functionality to the particular license server that was no longer capable of managing a distribution of allocations to use the protected software; and

10 transferring the new redundant license file to other license servers in the pool if the new sequence number is greater than any sequence number currently stored in any other license server in the pool.

20. (Previously Presented) A method for managing licenses for protected software on a communication network, the method comprising:

5 coupling at least one client computer to the communication network for enabling the at least one client computer to issue a request for an authorization to use the protected software over the communication network;

coupling a pool of license servers to the communication network, each license server managing a distribution of allocations to at least one client computer to use the protected software and managing a record of allocations;

10 selecting one of the license servers in the pool as a current leader server and
maintaining a record of allocations for license servers in the pool with the current leader server;

designating other license servers that are not the current leader server as follower servers;

15 selecting one of the follower servers as a new leader server whenever the current
leader server can no longer manage the distribution of allocations for the license servers, and
transmitting the record of allocations for each license server to the new leader server.

21. (Previously Presented) A system as recited in claim 4, wherein the current leader server is programmed for communicating a heartbeat to each follower server;

wherein each follower server is programmed for communicating an acknowledgement to the current leader server in response to the heartbeat; and

5 wherein the current leader server designates a follower server as being down if no acknowledgement is received from that follower server.

22. (Previously Presented) A system as recited in claim 4, wherein the current leader server is programmed for communicating a heartbeat to each follower server;

5 wherein if a follower server does not receive the heartbeat from the current leader, then the follower server that did not receive the heartbeat sends a check message to the current leader; and

wherein if the follower server that did not receive the heartbeat does not receive a response from the current leader in reply to the check message, then the follower server that did not receive the heartbeat starts an election process to elect a new current leader.

23. (Previously Presented) A system as recited in claim 4, wherein if a follower server becomes the new leader server, then the new leader server sends a heartbeat to each of the remaining follower servers; and

5 wherein each of the remaining follower servers communicates the status of the allocations for that particular follower server to the new leader server.

24. (Previously Presented) A system as recited in claim 1, wherein the first license server to begin operation in the pool of license servers is designated as the current leader server.

25. (Previously Presented) A system as recited in claim 3, wherein the current leader server maintains a list that indicates whether or not each particular follower server is in operation;

wherein the current leader server sends the list to each follower server; and

5 wherein the follower servers use the information contained in the list to select a new leader server if the current leader server can no longer manage the distribution of allocations for the license servers.

26. (Currently Amended) A system for managing licenses for protected software on a communication network, the system comprising:

at least one client computer coupled to the communication network for requesting authorizations to use the protected software; and

5 a pool of license servers coupled to the communication network, each license server programmed for managing a distribution of one or more allocations to at least one client computer to use the protected software, the pool of license servers including a current leader server programmed for maintaining a record of allocations for license servers in the pool;

wherein the pool of license servers includes at least one follower server;

10 wherein each follower server is programmed such that it is capable of becoming a new leader server if the current leader server can no longer manage the distribution of allocations for the license servers;

 wherein the pool of license servers is ~~are~~ programmed for communicating with each other and determining when a particular license server can no longer manage a distribution of
15 allocations to use the protected software; [[,]]

 wherein each client computer that has received an authorization from a particular license server, and the particular license server that sent the authorization to the client computer, are programmed for communicating heartbeats between each other;

 wherein each client computer that has received an authorization from a particular
20 license server also receives a leader priority list from that particular license server;

 wherein each client computer that has received an authorization from a particular license server is programmed for determining whether that particular license server is still capable of managing a distribution of allocations to use the protected software; and

 wherein each client computer that has received an authorization from a particular
25 license server but has determined that particular license server is no longer capable of managing a distribution of allocations to use the protected software is programmed for locating another license server by using the leader priority list.

27. (Previously Presented) A system for managing licenses for protected software on a communication network, the system comprising:

 at least one client computer coupled to the communication network for requesting authorizations to use the protected software; and

5 a pool of license servers coupled to the communication network, each license server programmed for managing a distribution of one or more allocations to at least one client

computer to use the protected software, the pool of license servers including a current leader server programmed for maintaining a record of allocations for license servers in the pool;

10 wherein the current leader server manages a distribution of allocations to more than one client computer to use the protected software.

28. (Previously Presented) A system for managing licenses for protected software on a communication network, the system comprising:

at least one client computer coupled to the communication network for requesting authorizations to use the protected software; and

5 a pool of license servers coupled to the communication network, each license server programmed for managing a distribution of one or more allocations to at least one client computer to use the protected software, the pool of license servers including a current leader server programmed for maintaining a record of allocations for license servers in the pool; the
10 pool of license servers further including at least one follower server, each follower server programmed for managing the distribution of allocations for that particular follower server;

wherein a first follower server authorizes a first client computer to use the protected software; and

wherein the current leader server authorizes a second client computer to use the protected software.

29. (Previously Presented) A method as recited in claim 20, further including the steps of:

communicating a heartbeat from the current leader server to each follower server;

5 communicating an acknowledgement from each follower server to the current leader server in response to the heartbeat; and

designating a follower server as being down if no acknowledgement is received from that follower server.

30. (Previously Presented) A method as recited in claim 20, further including the steps of:

communicating a heartbeat from the current leader server to each follower server;

5 sending a check message to the current leader server from each follower server that does not receive the heartbeat from the current leader server; and

starting an election process at each follower server that does not receive a response to the check message from the current leader server in order to elect a new current leader server.

31. (Currently Amended) A method as recited in claim 20, further including the steps of:

5 sending a heartbeat from the follower server that is selected as the new leader server to each of the remaining follower servers which the current leader server can no longer manage the distribution of allocations for the license servers; and

communicating the status of allocations for each remaining follower server to the new leader server in response to the heartbeat sent from the new leader server.

32. (Previously Presented) A method as recited in claim 11, wherein the step of selecting one of the license servers in the pool as a current leader server comprises:

selecting the first license server to start operation as the current leader server.

33. (Previously Presented) A method as recited in claim 13, further including the steps of:

maintaining a list with current leader server indicating whether or not each of the follower servers is in operation;

5 sending the list from the current leader server to each of the follower servers; and

using the information contained in the list to select a new leader server if the current leader server can no longer manage the distribution of allocations for the license servers.

34. (Previously Presented) A method as recited in claim 14, further including the steps of:

communicating heartbeats between client computers that have received an authorization from a particular license server and that particular license server;

5 communicating a leader priority list from license servers to the client computers to which they send authorizations;

determining, for each client computer that has received an authorization from a particular license server, if that particular license server is still capable of managing a distribution of allocations to use the protected software; and

10 locating, for each client computer that has received an authorization from a particular license server but has determined that particular license server is no longer capable of managing a distribution of allocations to use the protected software, another license server by using the leader priority list.

35. (Previously Presented) A method as recited in claim 11, wherein the current leader server manages a distribution of allocations to more than one client computer to use the protected software.

36. (Previously Presented) A method as recited in claim 12, further including the steps of:

authorizing, from a first follower server, a first client computer to use the protected software; and

5 authorizing, from the current leader server, a second client computer to use the protected software.

37. (Previously Presented) A system as recited in claim 1, wherein the new leader is programmed for transmitting a signal to each license server in the pool identifying itself as the new current leader, and receiving the record of distribution in response to the transmitted signal.

38. (Currently Amended) A system as recited in claim 1, wherein upon receipt of the record of distribution from each license server, the new leader is programmed for amending its record of distribution to include the record of distribution for each license server such that a new record of allocations for the license ~~licensed~~ servers in the pool is created on
5 the new leader.

39. (Currently Amended) A system as recited in claim 3, wherein upon receipt of the status of allocations from each license server, the new leader is programmed for amending its status of allocations to include the status of allocations for each license server such that a new record of allocations for the license ~~licensed~~ servers in the pool is created on
5 the new leader.

40. (Currently Amended) A system as recited in claim 4, wherein upon receipt of the record of distribution from each license server, the new leader is programmed for amending its record of distribution to include the record of distribution for each license server such that a new record of allocations for the license ~~licensed~~ servers in the pool is created on
5 the new leader.